N° 13,597 A.D. 1900

Date of Application, 28th July, 1900
Complete Specification Left, 17th Apr., 1901—Accepted, 1st June, 1901

PROVISIONAL SPECIFICATION.

"Improvements in or relating to Spools applicable for Photographic Films"

(A communication from FRANK A. BROWNELL of Rochester, State of New York, U.S.A.)

We, KODAK LIMITED of 43, Clerkenwell Road, in the County of London, Photographic Manufacturers, do hereby declare the nature of this invention to be as follows:—

This invention relates to spools and has more particular reference to that class of spools used in making film cartridges for photographic cameras. The object of this invention is to provide a film and spool which can be turned out by automatic machinery at a nominal cost.

In constructing a spool according to this invention a spindle is provided of suitable material such for instance as wood and means are provided at each end for readily attaching discs thereto forming the flanges of the spool. The ends of the spindle are preferably reduced in diameter so as to form shoulders against which the aforesaid discs bear when in position. Apertures or recesses may be formed at each end of the spindle for the reception of the centreing devices in the camera or the spool may be bored throughout its length. If desired projections on the spindle may engage with recesses in the camera. A transverse slot or the like may be made at one end of the spindle in order to provide means for readily rotating it by the usual key.

The flanges of the spool may be formed of discs of cardboard, pasteboard or similar light material. A central aperture is preferably provided in them, fitting the reduced ends of the spindle. The flanges may be secured to the spindle by glue or other adhesive substance. In order to still further secure the flanges to the spindle and to prevent their accidental or intentional removal the outer edges of the reduced ends may be expanded or burred over the discs. Care must be taken in performing this burring operation not to interfere with the centreing recesses or projections. The burring of the wood may be performed in an automatic machine by two circular hammers or ring tools striking blows at opposite ends of the spindle simultaneously, the tools being accurately centred with regard to the devices which hold the spindle during the operation.

A longitudinal slot may be formed in the spindle preferably at one side of its axis, through which the end of the paper which the spool is to contain may be passed to fasten it to the spool.

Dated this 28th day of July 1900.

BOULT, WADE & KILBURN.
Agents for the Applicant.

COMPLETE SPECIFICATION.

"Improvements in or relating to Spools applicable for Photographic Films"

(A communication from FRANK A. BROWNELL of Rochester, State of New York, U.S.A.).

We, KODAK LIMITED of 43, Clerkenwell Road, in the County of London, Photographic Manufacturers, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to spools and has more particular reference to that class of spools used in making film cartridges for photographic cameras. The object of this invention is to provide a film and spool which can be turned out by automatic machinery at a nominal cost.

In constructing a spool according to this invention a spindle is provided of suitable material such for instance as wood and means are provided at each end for readily attaching discs thereto forming the flanges of the spool. The ends of the spindle are preferably reduced in diameter so as to form shoulders against which the aforesaid discs bear when in position. Apertures or recesses may be formed at each end of the spindle for the reception of the centreing devices in the camera or the spool may be bored throughout its length. If desired projections on the spindle may engage with recesses in the camera. A transverse slot or the like may be made at one end of the spindle in order to provide means for readily rotating it by the usual key.

The flanges of the spool may be formed of discs of cardboard, paste-board or similar light material. A central aperture is preferably provided in them, fitting the reduced ends of the spindle. The flanges may be secured to the spindle by glue or other adhesive substance. In order to still further secure the flanges to the spindle and to prevent their accidental or intentional removal the outer edges of the reduced ends may be expanded or burred over the discs. Care must be taken in performing this burring operation not to interfere with the centreing recesses or projections. The burring of the wood may be performed in an automatic machine by two circular hammers or ring tools striking blows at opposite ends of the spindle simultaneously, the tools being accurately centred with regard to the devices which hold the spindle during the operation.

A longitudinal slot may be formed in the spindle preferably at one side of its axis, through which the end of the paper which the spool is to contain may be passed to fasten it to the spool.

In the accompanying drawings:—

Figure 1 is a perspective view of a spool constructed according to this invention.

Figure 2 a similar view showing the opposite end.

Figure 3 a longitudinal-sectional view.

Figure 4 a sectional view of a spindle forming part of the spool.

Similar reference numerals indicate similar parts.

The film cartridge of which the spools form the support are composed of a strip of black paper and sensitive photographic film wound together upon the spool in such manner that the film is protected from light and the cartridges may be introduced in the cameras adapted for them in daylight without exposing the film to light, and, as the primary object of the cartridge is to obviate the necessity of carrying heavy glass photographic plates and plate holders, it is desirable that the cartridges be as light as possible and as the spools are thrown away after the film is wound off them, that they may be made of cheap material by automatic machinery capable of turning them out in great quantities at a

nominal cost. The lightest and cheapest materials which are adapted for the spools are wood for the body or spindle and cardboard, pasteboard or similar material for the end flanges. The spindle or body of the spool, indicated by 1 in the accompanying drawings, is formed from a single round stock of wood which by automatic machinery is formed with the central apertures or recesses 2 in each end for the reception of the centreing devices in the camera, and the exterior portions of the ends are reduced at 3 to form the seats for the end discs 4, said discs abutting against the shoulders 5. One of the ends of the spindle is provided with the transverse slot or key-way 6 extending across one of the end recesses 2 for the reception of the flanges of the winding in the camera. 7 indicates a slot in the spindle extending longitudinally thereof and preferably at one side of the axis thereof through which the end of the paper, which the spool is to contain, is passed to fasten it to the spool. The spindle, as described, is adapted to be and is readily formed in an automatic lathe, and the end discs 4, constituting the end flanges of the spool, are cut from pasteboard, cardboard, press bond, or similar cheap or light material having the central aperture fitting the reduced ends 3 of the spindle and are applied thereon and secured, if desired, by glue or a similar adhesive between the parts. In order to prevent the accidental or intentional removal of the end disc 4 and to supplement the action of the holding glue the ends of the spindle are indented, expanded or spread at 8 between the central apertures or recesses 2 and the outer edges preferably so as to cause a portion to extend over the inner edges of the discs 4 and hold the latter firmly against the shoulders 5, as shown. This indenting or spreading of the spindle ends is at such a distance from the central centreing apertures 2 as not to alter or change them, for the spool must be centred to cause the film and paper to draw evenly from one spool to the other in the camera, and by reason of the wood employed, the spreading may be formed in an automatic machine by two circular hammers or ring tools striking blows at opposite ends simultaneously, said tools being accurately positioned with regard to the devices which hold the spindle during the operation.

The spools as a whole are very light, and by reason of the construction and materials employed can be turned out by automatic machinery at a very rapid rate and a nominal cost.

Having now particularly described and ascertained the nature of the said invention as communicated to us by our foreign correspondent and in what manner the same is to be performed, we declare that what we claim is:—

1. The complete spool for photographic film cartridges substantially as described and illustrated in the accompanying drawings.

Dated this 17th day of April 1901.

BOULT WADE & KILBURN.
Agents for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Malcomson & Co., Ltd.—1902

A.D. 1900. July 28. Nº 13,597.
KODAK'S [LD.] Complete Specification.

Fig. 1.

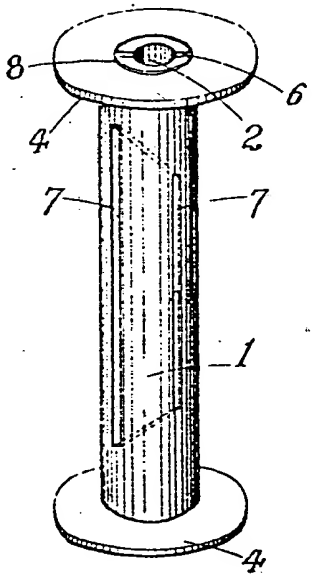


Fig. 2.

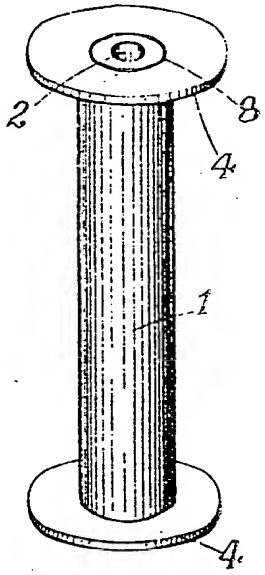


Fig. 3.

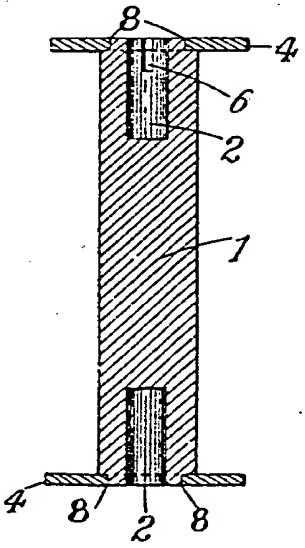
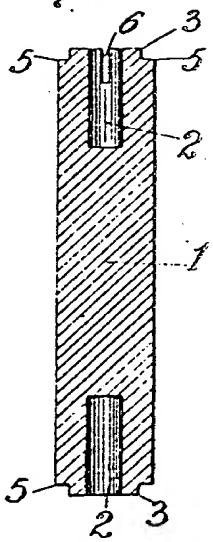


Fig. 4.



[This Drawing is a reproduction of the Original on a reduced scale.]

Maiby & Sons, Photo-Litho.